

ORAL HISTORY INTERVIEW

Dr. Nikola Prokopovich



STATUS OF INTERVIEW:
OPEN FOR RESEARCH



Interviews Conducted and Edited by:
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Interviews conducted–1994
Interview edited and published–2022

Oral History Program
Bureau of Reclamation
Denver, Colorado

SUGGESTED CITATION:

Prokopovich, Nicola. *Oral History Interview*.
Transcript of tape-recorded Bureau of Reclamation
oral history interviews conducted by George
Petershagen, Historian, Bureau of Reclamation, July
21, 1994, in Orangevale, California. Edited by
George Petershagen and desktop published by
Andrew H. Gahan. Repository for the record copy
of the transcript is the National Archives and
Records Administration in College Park, Maryland,
or the regional office in the Denver, Colorado, area.

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lb., 100% cotton, archival quality paper. All other copies
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Statement of Donation

STATEMENT OF DONATION ORAL HISTORY INTERVIEWS Nikola P. Prokopovich

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Editorial Convention

A note on editorial conventions. In the text of these interviews, information in parentheses, (), is actually on the tape. Information in brackets, [], has been added to the tape either by the editor to clarify meaning or at the request of the interviewee in order to correct, enlarge, or clarify the interview as it was originally spoken. Words have sometimes been struck out by editor or interviewee in order to clarify meaning or eliminate repetition. In the case of strikeouts, that material has been printed at 50% density to aid in reading the interviews but assuring that the struckout material is readable.

The transcriber and editor also have removed some extraneous words such as false starts and repetitions without indicating their removal. The meaning of the interview has not been changed by this editing.

While we attempt to conform to most standard academic rules of usage (see *The Chicago Manual of Style*), we do not conform to those standards in this interview for individual's titles which then would only be capitalized in the text when they are specifically used as a title connected to a name, e.g., "Secretary of the Interior Gale Norton" as opposed to "Gale Norton, the secretary of the interior;" or "Commissioner John Keys" as opposed to "the commissioner, who was John Keys at the time." The convention in the Federal government is to capitalize titles always. Likewise formal titles of acts and offices are

capitalized but abbreviated usages are not, e.g., Division of Planning as opposed to "planning;" the Reclamation Projects Authorization and Adjustment Act of 1992, as opposed to "the 1992 act."

The convention with acronyms is that if they are pronounced as a word then they are treated as if they are a word. If they are spelled out by the speaker then they have a hyphen between each letter. An example is the Agency for International Development's acronym: said as a word, it appears as AID but spelled out it appears as A-I-D; another example is the acronym for State Historic Preservation Officer: SHPO when said as a word, but S-H-P-O when spelled out.

Introduction

In 1988, the Bureau of Reclamation created a History Program. While headquartered in Denver, the History Program was developed as a bureau-wide program.

One component of Reclamation's history program is its oral history activity. The primary objectives of Reclamation's oral history activities are: preservation of historical data not normally available through Reclamation records (supplementing already available data on the whole range of Reclamation's history); making the preserved data available to researchers inside and outside Reclamation.

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For additional information about Reclamation's history program see:
www.usbr.gov/history

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**Oral History Interview
Nikola Prokopovich¹**

Petershagen: This is George Petershagen conducting an interview of Dr. Nikola Prokopovich on behalf of the Bureau of Reclamation. Dr. Prokopovich worked throughout his career as a geologist for the Bureau. Today's date is July 21, 1994 and this Tape 1, Side A.²

Now Nik, before I ask specific questions about your life and career, I would like you to acknowledge to me please that you understand we're tape recording this interview. (Pause) Would you please say "yes"?

Prokopovich: Yes. Yes, I do.

Petershagen: (Chuckles) Thank you. And that you are giving this interview as a gift to the government of the United States, and it becomes the property of the United States.

Prokopovich: Yes.

¹ Dr. Prokopovich granted two interviews for his oral history. The sessions occurred on July 21 and July 24, 1994. Unfortunately, the tapes for the July 24 interview are missing. The July 21st session represents the entire Prokopovich oral history.

² Also present is the narrator's wife, Sylvia Prokopovich, who added some detailed information. She is identified as S. P. in the transcript.

Petershagen: Thank you. Now, let's begin, I guess, at the very beginning. Where were you born?

Born and Raised Kiev

Prokopovich: I was born in the City of Kiev in southwestern Russia. This is now called Ukraine.

Petershagen: And when was that?

Prokopovich: It was in August 24, 1918.

Petershagen: 1918?

Prokopovich: 1918.

Petershagen: During World War I?

Prokopovich: During Revolution.

Petershagen: During the Revolution, also!

Prokopovich: Actually, I am a child of Revolution, if you call it so.

Petershagen: I understand.

Prokopovich: Very often when I'm driving in San Joaquin Valley, there's a bunch of these

tumbleweeds, tumbling around with me, (Laughter) and I think that's what we are—children of Revolution. By the way, tumbleweeds came in America, I believe in last century, with some load of wheat from Ukraine, and then spread all over the United States, just like me.

Petershagen: How long did you live in Kiev?

Prokopovich: In Kiev I lived most of my life. Excuse me, turn off the recorder. (Tape turned off and on). [While the recorder was off Prokopovich emphasized that he would not answer certain questions.]

Petershagen: So you went through all of your early schooling in Russia?

Prokopovich: I went through public school in Kiev.

Petershagen: You went through the university in Russia?

Prokopovich: Well, let me finish.

Petershagen: I'm sorry.

Prokopovich: It was seven grades. When I was in the seventh grade, they opened a ten-grade school. My mother passed away when I was

about eight years old, so I was living with father and aunt. My father was very old. I realized that I had to help him rather than enjoy my life. I wanted to go to the university all my life, but I kind of thought, "I don't like to go to university. I like to go to gymnasium, or what they call high school, the middle school in Russia. I'd like to go to technical school."

So I did this, soon, after three, four years . . . I would see if I can support my father and learn and . . . He didn't like it, but I pushed on my own. So after graduation from this elementary school, I went in technical school, geological technical school, and I was there, I believe, three years. But just a year before my graduation, my father passed away, so I decided if I would be graduated from technical school I have to work four or five years before I have the right to go to college. So I kind of pulled out from the technical high school and finished what they call "*rap fac*" [phonetic spelling] which is kind of night school for older people who didn't finish high school.

Petershagen: I see.

Prokopovich: I went in last course of *rap fac* and then was

graduated from *rap fac*. It gives me high school diploma. And then I went in university. It was very rough time for me. I went . . . I tried to be geologist, but geology faculty was closed that year so I went in geography faculty. And I was very depressed with these events. I get cold—later on infection—and rheumatic fever. So for almost a year I was in bed.

Petershagen: Wow!

Prokopovich: Just a few days before my father collapsed, there happened something very unusual which was never really practiced in Soviet Union. They started to insure lives, personal lives—it was never before. And my father insured his life for three thousand rubles, three hundred rubles. Then he collapsed and passed away. I received the three hundred rubles, and that was money that I was able to go to school to finish. He did whatever he tried to do before. He tried to put me in university, and he put me through university, his way.

Petershagen: Very good.

Prokopovich: Well, kids come and visit, take me in hospital and so on. I was . . . just lying

patient. They didn't let me move in the room, nothing. I had a very bad heart condition at the time. And I was doing exams. What I would do is I would take a book, read and make, passed exams. And I did it! I didn't have anything to do so I read, read, read, and read. And that way . . . How I didn't lose the year.

Petershagen: Very good!

Prokopovich: So when I went on second year, I don't know why, but second year was many, many what we call windows opened, not lessons and so on. And my money was getting so tight, so I decided I didn't know if I would be able to survive to graduation with this money that I have. So I asked permission to . . . pass the grade for second course, too.

Petershagen: I see.

Prokopovich: I don't remember the name, this exactly I cannot tell you. But anyway when I came to school for third year, my neighbor was already in geology, a step ahead. You see what I mean?

Petershagen: Yes, I see.

Prokopovich: So I came out and asked permission to fill out my courses for last two years and get the geology.

Petershagen: I understand. Now . . .

Prokopovich: That's how I came in geology. Actually, I don't remember—I'm poor with numbers, don't ask me. I have to look at my papers that . . . Actually I believe in three years I finished seven years of university.
(Chuckles)

Petershagen: Wow! You obviously love geology as a profession.

Desired to be a Geologist

Prokopovich: Yeah.

Petershagen: And it sounds like you wanted to be a geologist.

Prokopovich: I was wanting to be a geologist.

Petershagen: Why geology?

Prokopovich: Well, I don't like to go into details. You see, I loved very much my mother. And we are Greek Orthodox people, and when my

mother died, it was very big crisis for my . . . I was eight years old, as I told you, eight, nine years old, and it was a tremendous crisis for me, all this requiem and the services and so on. The soil is alive and the body is dead. And so it's kind of . . . And in school they taught there was no God. It's all lies and so on. So I thought big controversy. So I decided to find out myself what is the truth.

Petershagen: I see, so that spurred your scientific interest then?

Prokopovich: Yeah, yeah. I read physics, chemistry, geology (Chuckles) whatever I could! (Laughing) Matter of fact, I can show off about me. One of the books was a study about atoms, which is probably something in physics you've dealt with—break your heart that I can read that . And I was about nine, ten-years-old kid! And that's how I found out geology.

Petershagen: Very good. So after you graduated from the university?

Military Service

Prokopovich: After I graduated university—that was almost

a miracle—because you see, students had for military service. Well my military training was excellent. Last time I shot a gun, I probably was fifteen years old. It was in this technical school, we have to shoot.

Petershagen: I see. Military training was part of the technical school?

Prokopovich: Part of the geological technical school. Military was in high school, too, and so on. And you have to put this gas mask on it, and take a gun and shoot and so on. Oh, God! if you don't shoot the target, you don't pass exam.

Petershagen: I see.

Prokopovich: (Laughs) In this country, you put up target and tear it apart and so on. In the Soviet Union paper was valuable, so they take target and mark the target. Yeah, I shoot. They mark it with cross, with pencil, then you shoot at the same target and so on. I tried to shoot my target (Sigh)—missed all of them. So I called my instructor and told him, "Comrade . . ." Oh, dear, what was his name. I don't remember. My gun . . . When you're looking, there's a small indicator to shoot, you know, a guide to shoot, you

know.

Petershagen: Through the sites.

Prokopovich: Yeah, "I think it's probably moved over."
"Oh no, Comrade, you're baloney. It can't happen. Shoot, shoot, shoot. It's easy. Everything . . ." Then somebody called him, and he said, "Now shoot." I really prayed and shoot. I think that was what—five bullets. I shoot the five bullets they gave me, and you know what? All five bullets was on target, but the only thing, one bullet was out of target. (Laughter) So I passed! I didn't lie. I told the truth. I didn't even know. Then later on I understood it. (Laughing) No one could find the bullets, I shoot. (Laughs) But that was my military training! (Laughter) I think as a soldier I would be excellent! Well anyway, just about at the end of university, I applied for what are called State Exams. One from each course, I applied for five or six exams, to get the points. Well (Sigh) just during exam time, they called me . . . Well, they called me before and gave me what they called white ticket, because of my poor vision, I am not eligible for army draft. Good! About a month before I take exams, they called me, took my white ticket away, told me "You

have to go for rechecking." Probably they were planning for war, or so I don't know.

So I came at—there was a drafting point. They checked me and told me to come on next Monday, next Monday, next Monday, Tuesday, Tuesday, Tuesday, Wednesday. Until it was go next week. And next week was my exam. So I tell them, "Can you do it Saturday." No, Saturday is for . . . Oh, the hell with you. We'll give you a Saturday." And Saturday I came for exam, and I get my white ticket. And Sunday, next Sunday, I thought to sleep pretty good, because Monday I have the exam. So to sleep good, a good night's sleep, and I couldn't. I was sleeping. At five o'clock started bombing—the Germans started to bomb city. So that's how I survived. Because if I would be drafted, I wouldn't be alive here.

Petershagen: And these white tickets you referred to, that was an exemption from the army?

Prokopovich: Exemption from military service. So that's how I survived—absolutely abnormal.

Petershagen: (Laughs) So the night . . .

Prokopovich: Just as much as my finishing university.

Petershagen: The night before your exams was when the bombing started? Did I understand that correctly?

Prokopovich: No, Sunday morning they bombed. This Monday held my exam.

Petershagen: So the day before your exams?

Prokopovich: Yeah.

Petershagen: Now did your exams proceed that week, normally?

Prokopovich: Oh yeah, oh yeah.

Petershagen: And then what did you do? You passed your exams?

Prokopovich: Passed exams, then I stood in Kiev.

Petershagen: And before we leave the exams, were these all written exams?

Prokopovich: No, these five last exams were oral.

Petershagen: Oral exams in front of a board of professors?

Prokopovich: Pardon me?

Petershagen: With a committee of professors? Or just one professor?

Prokopovich: I think three or four professors were sitting there. I don't remember exactly now. It's almost fifty years ago! (laughter)

Petershagen: So then you stayed in Kiev?

Completed Graduate Courses under Germans

Prokopovich: Stayed in Kiev. I tried to stay at the university. I tried to stay at the university–graduate student, kind of position—which I was unable . . . Because the war started. The Germans came in and destroyed everything. But they took us in geological kind of like university course and continued geology. So I was studying there—for how many years—during occupation.

Petershagen: I see. When did you leave Kiev?

Prokopovich: (Sigh) Oh, God! You'd have to look on my documents, I really don't recall exact years. I put everything . . . away.

Petershagen: Alright. That's fine.

Prokopovich: And then I went in Ternopol, which is southwestern part of Ukrainian. And from Ternopol, they took us to Germany. In Germany, I was lucky because the professor at the university was old Russian officer. He was German.

Petershagen: Yes, of course.

Prokopovich: But a hundred percent German and so on, but he was an enormous man and he used his powers to protect us.

Petershagen: And where in Germany was this?

Prokopovich: Actually, it was, at the beginning it was Polish, really not Germany. It's part of Poland that Germany grab in. And then the Communists came to Poland. We moved out from Poland. I arrived to Berlin, and from Berlin I tried to go as much west as possible. So from Berlin I moved—there were friends of mine—they told me they have friend of somebody. It was in Wurttemberg in southwestern Germany. So I moved there. And then I was working as a laborer for a while, for a very short time. The French army came in. We were displaced

persons. They tried to send all former Soviet citizens back to "paradise," but I was lucky. The Polish people help us very much. They told them that we are Polish. So I lived all the time in Germany as a Polish man. By the by, if you are interested in my personal life. In Russia, sometimes in Germany, they tried to explain to us that we are still manure. They used more precise words (Laughter) for German soil, good fertilizer.

So at that time I bite my lips and decided that "Okay, I'm still manure. You will give me doctor degree (Laughter) if I will survive." And I should really admire . . . In reality I owe my life to Polish people, because there was a couple thousand Polish people . . . Well, you talk to me half-an-hour, you know I'm not . . . I'm foreigner born—my accent and so on. There's no question. I never learned Polish—well, Polish and Russian language, Ukrainian language are related. But you know, if I tell you that Mr. So-and-so is from Soviet Union, I will get five pounds of sugar. Five pounds of sugar is a great deal! And none of them denounced me. It was thousands of them. They understood the result of our opposition and tried to protect us and help us

very, very much. Until the end of my life I'll be thankful for them.

Petershagen: So in spite of the chance to receive a reward, they protected you?

Prokopovich: Five pounds of sugar. It's a fortune!

Petershagen: I see.

Prokopovich: Nobody, not a single person, denounced us. They covered us all the time. So I'm very thankful. I learned Polish pretty good and pretty fast! But it was immigration . . . Well, returning it again into school, I get my doctor diploma from Germany. I don't know if I'm doctor now or not because the diploma is granted for fifty years only.

Petershagen: (Laughs) It was given for fifty years?!

Prokopovich: Officially. You see, they have several different universities. After fifty years, they have to prove that I was worth it, and they gave me until the end of my life. I don't think I'll apply for it.

Petershagen: You're not ready to start a new occupation, huh?

Emigrating to the United States

Prokopovich: No, I'm ready to go for recycling. Then I moved to Tübingen, University of Tübingen in Tübingen. Got my doctor diploma there and emigrated in United States. I met Sylvia in Germany. We were engaged, but we married here in Yankton, South Dakota, because if we married there, we have to hold papers from beginning and so on. At the last moment, there was a big scare that the immigration was all on the payroll by Soviet Union. At the last moment, I kept out from Poland, Poland, Poland. And then the day before we submitted papers, I went to the Surete. It's the French police authorities.

Petershagen: Right.

Prokopovich: I told them. (Laughs) He was laughing, "We knew about it all the time!" So I changed my papers. As a matter of fact, he gave me all my old papers, I threw them away when we moved here. I couldn't have—there was no place here. We had a beautiful house. Now we have such a small apartment. So I threw away all my papers, practically all in garbage. No use to keep it for funeral. Casket should be too much.

Petershagen: So, before you mentioned the Polish people kept you safe, but at the same time the French officials were helping you, too.

Prokopovich: But they knew. French knew about who is who probably, and so on. Anyway, when I talked to Surete he said, "What is wrong here?" I said, "My birthplace is wrong."
(Laughter)

Petershagen: Now when did you come to the United States? Do you remember the year?

Prokopovich: Oh, God. (Sigh) (Calls to wife) Sylvie?

S. P.: June 19, 1950, in Boston.

Prokopovich: In Boston.

Petershagen: Sylvia remembers it very well. She knows the day even!

Prokopovich: Well, she's my brain, I told you—my eyes and my brain. (Laughs) I don't know what I'd do without her!

Petershagen: That's very good.

Prokopovich: So you came in 1950 to Boston.

Prokopovich: Yeah.

Petershagen: Did you leave Boston immediately?

Prokopovich: Oh yeah, about six hours or maybe twelve hours after, we came out. We came by train to New York. And she went farther to Chicago and to South Dakota, and I stayed in New York at the Tolstoy Foundation Farm next to New York.

Petershagen: I see. And why South Dakota?

S. P.: Because I had a sponsor there. I am a Lutheran, and Lutheran Church sponsored me and my mother. We were not married. So, I went with my mother to South Dakota and he stayed in New York.

Petershagen: Very good. And how long did you stay in New York then?

S. P.: One month.

Prokopovich: A month or two months.

S. P.: We came in June and he came sometime in July to South Dakota too.

Prokopovich: Well, that's all in these papers that I told you

...

Petershagen: Yes. (All talking at once.)

Petershagen: Alright, so you eventually came to South Dakota?

Prokopovich: That's right.

S. P.: And how long you stayed? Tell him.

Living in South Dakota

Prokopovich: I don't know, a couple of months. South Dakota conditions were very bad, frankly. Miserable. We lived in a hole in their house, without walls, without windows, without doors.

Petershagen: Oh my goodness!

Prokopovich: And we worked about twelve hours per day, including Saturday and Sunday. Oh! Sunday was only six hours.

Petershagen: Doing farm work?

S. P.: No, in a motel.

Petershagen: Oh, I see.

Prokopovich: I don't have any bad feelings about it, but the lady was a little bit. . . crazy, I think. Nobody would work for her. But fortunately I found out someplace in Minneapolis, so about two months we stayed there.

S. P.: I think it was something in the . . .

Prokopovich: You have to take a look at my papers. It's all exactly mentioned there. I cannot tell you. Then we went to Minneapolis. Conditions were much better there. I was working as a dishwasher, and later, busboy, which was much better—it was seventy-five or eighty cents per hour. I think in the hotel we had probably ten cents per hour. I don't know, can't tell you right now. And in time I went to the university and got a job at the university. I was in the university for about five years, approximately, that was.

S. P.: Six years.

Prokopovich: Six or five, I don't know. Five-and-a-half, five, six years in the university. It was pretty good. But I was working, really, for the Geological Survey. I was independent, did whatever I wanted, really.

Petershagen: Very good!

Prokopovich: Well, not exactly, but the research assistant was pretty good. I have no complaints about it.

Petershagen: Certainly much better than washing dishes and being a busboy!

Prokopovich: Well, no, I tell you what, when I was washing dishes I was underpaid, but I was able to buy what I couldn't in Germany, and I came in the first year for Minnesota winter. I came here in the old shoes given by the Salvation Army. So they went back and forth on the ocean. So I'm thankful for America. I have something to be thankful.

Petershagen: You said you worked at the university for about five or six years.

Prokopovich: Yeah.

Petershagen: And then did you go to work for the Bureau of Reclamation from there?

Going to Work for the Bureau of Reclamation

Prokopovich: And then I had two proposals. One proposal was to go to . . . Do you know the Chicago Field Museum of Natural History?

Petershagen: Yes.

Prokopovich: Well, one proposal was to be their curator there, which is excellent job.

Petershagen: Very good job.

Prokopovich: And second proposal was to go to work for . . . I filled out forms, you know, applied for federal positions. And a federal position to go here to Sacramento to the Bureau of Recreation. So my wife suffered very bad from cold and winter, and Chicago is not the nicest place in the world! (Chuckles)

Petershagen: Oh yes! Both Minneapolis and Chicago are very cold in the winter.

Prokopovich: I know, I know, and Chicago is very windy, too, so I decided to go to the Bureau, and that's how I came to the Bureau of Recreation—or Reclamation, pardon me. But for me it was recreation because I did enjoy my work, too!

Prokopovich: So you came here then in the early 1950s?

S.P.: July.

Prokopovich: 1956, I believe. You have to look in the

records, I cannot tell you.

Petershagen: Yes sir.

S. P.: Excuse me. We came here in '56, in July 1956.

Petershagen: And you were hired by the Bureau as a geologist?

Prokopovich: As a geologist. And I was fired from the Bureau as a geologist, too.

Petershagen: (Laughs) So really the decision to work for the Bureau of Reclamation then was based on the location here in Sacramento and looking for a warmer climate?

Prokopovich: Both location and . . . You see, there are two different worlds. "Ivory tower" of university, and real life in field. And I was . . . Actually, my education, I was trained to be in the ivory tower, but somehow I thought real work was more challenging, more productive. (Chuckles) I can do something better in the real world. So that's why I came for Bureau.

Petershagen: So we might be contrasting what I would call "hands-on work"—is what you called

"real work" I think—versus teaching in the ivory tower.

Prokopovich: That's right, teaching and research. Actually in the ivory tower, I can write a dissertation using one test hole. Here we have thousands of test holes. It's much more down-to-earth, background.

Petershagen: Very interesting! Now, let me stop you for a minute because we have to change the tape.

END SIDE A, TAPE 1.

BEGIN SIDE B, TAPE 1. JULY 21, 1994.

Petershagen: Nik, you explained why you came to work for the Bureau of Reclamation. I'm somewhat interested in that you were allowed to do research for the Bureau of Reclamation here in Sacramento, and most of the Bureau's technical research is done in Denver. Why were you able to do research here in Sacramento? Why weren't you sent back to Denver at some point, do you know?

Preferred Working in Sacramento

Prokopovich: I know I insisted on doing it. I'm not against Denver people. Don't misunderstand me.

Petershagen: I understand that.

Prokopovich: But somehow they are ivory tower. They are cut off from real life, in a way. What they do is technical reports. They read report, digest it, and send it back and forth. And I don't think it's right. And it is much easier to do the study here, when I see what I am doing. I'll give you an example, for instance, we did some moisture determination, and moisture determination made in Sacramento was very different from moisture determination of the same core in Denver. Or there were some issues, they asked "why" and so on—"could it be that the right moisture determination?" We did not write determination to begin with, because they say to us, break the core and send part to us. Actually, instead of breaking core we have sliced core in part and make a channel sample from the middle of the core, to give a true sample. Because there are microveins that you cannot see will have different moisture. And if I would be sitting in Denver, I would break it apart and didn't know why I have different results. I came back to read it and did it myself, and I found out immediately what was wrong. I wrote a paper about it.

Petershagen: A-ha! So you really believe that you needed to be in the local area?

Prokopovich: Oh yeah!

Petershagen: To do your work properly.

Prokopovich: Oh yeah! Just to see what's happened. Because no matter how good is description . . . Well, I don't know, I don't think we need to build a laboratory in each project and so on. But brains should be in Denver, but I think local decision could be much . . . I'll give you another example. You know what is pH?

Petershagen: Yes.

Prokopovich: Well, okay, I'll give you an example now. For instance, you know Rancho Seco? It's an atomic power plant here, right? Well, Rancho Seco they came to me, "We can't understand what's happening." They used water from Folsom South Canal³ for cooling of these towers.

Petershagen: In the cooling towers, correct.

³ Folsom South Canal, about one-third complete, provides water for municipal and industrial use in Sacramento and San Joaquin counties.

Prokopovich: I don't know much about the project, really, but you know what I mean. And accordingly we analyzed water from Lake Natoma, from American River, and we decided it could be circulated—that number is wrong—twenty times. But actually, after fifteen circulations, starts to be water was too hard. They had to dispose. Why? Well (Chuckles) actually, they made a very small, very stupid mistake. They assumed that the water they were taking in Natoma is the same as water which they put in tower. There was about thirty or forty miles of concrete-lined canal, and water dissolved lime from this concrete! So sitting someplace in Denver, you won't be able to answer these things.

Petershagen: That's a very good illustration, a very good example.

Prokopovich: I'll give you an example on other things. (Pause) I'll give you another example. I don't like to mention names. One big dam, concrete dam in the western states, I came in. Safety engineer [said], "Look, come here. Damn! I cannot understand what's happened!" You know, our people work in . . . You know what is "grub gallery"?

Petershagen: Uh-huh.

Prokopovich: The lowest gallery in a dam.

Petershagen: Correct.

Prokopovich: (Sigh) Well, people working in the grub gallery complained, headache, fatigue, diarrhea, and the bad air, foul air, bad air . . . So I took an oxygen meter, a small one, measure oxygen here, here, [mimics with hands sampling at different points] and down. And it has more oxygen down than in front. "What's happened to my meter?!" Well, elementary! (Pause) "Do you have nails in your workshop?" "Yeah." "Are they okay?" "Yeah." "No rust?" "No." "If you put water on it, what happens?" "They will be rusty." "Why?" "Because more concentration of oxygen in water . . . gas oxygen—not H₂O—but oxygen is higher than in air, proportionately, nitrogen to hydrogen in water is more hydrogen than in air. Now, you are in a big dam, so-and-so many feet of water about you. Water enriched in oxygen seeps through your seams in the wall. Now, it's just like opening your pop, or Seven-Up—gas pops out! And gas is more oxygen, and see! (Laughs)

Petershagen: So that's why they were feeling upset?

Prokopovich: That's why. They have too much oxygen, and they have not used that meter. And such a thing is much easier to do in the field, than go ahead and do it miles away in Denver. I always tried to get Denver geologists to come here to see for themselves what they're doing. Okay.

Petershagen: Throughout your career now, you were in the position of a geologist.

Prokopovich: Uh-huh.

Petershagen: And you told me, before we started this interview, that you had never become the Regional Geologist? You never had any desire to do that sort of thing?

No Desire to be a Supervisor

Prokopovich: I never have desire to be a boss, but I tell my wife . . . Now, excuse me, maybe I'm not quite right. I think I told you about misplacement of supervisory personnel—excellent geologist, excellent engineer—by putting, really not in his shoes. But another thing, in old country, in Russia, later on Soviet Union—I don't know about in

Germany, I cannot tell you—geologists had a helper. A geologist is a higher-paid person. The helper is lower-paid person. But a geologist with a helper can do three times as much or four times as much. My productivity, I think was much larger than other productivity of geologists, but I always tried to get some helpers for me. And I milked them, and I think they were happy about working with me. I had quite a few students from school, two, three dozen persons from university was working for me. I gave them some work and they finish it, and they benefit from it, and the Bureau benefitted from it, too.

Petershagen: Very good. So you were a boss, a little bit of a boss, but almost more . . .

Prokopovich: Excuse me, please. Another day government send us a flier, "Supervisor person should not call 'boys' and 'girls' and so on." So I went in Personnel asking, how about calling them "slaves"? (Laughter) I never tried to see my people working for me as a boss—a good friend.

Petershagen: And a teacher? Is that fair to say?

Prokopovich: Well, if they liked it. I never tried playing

the teacher. I teach them a little bit. They learn some, too. A couple of girls told me that they learned in my place more than the university! I don't know what. (Laughter)

Petershagen: Now, did you travel around from project to project?

Traveling for Reclamation

Prokopovich: Ah, another thing which is bad with the Bureau, as a Bureau geologist–geology at least—we have several, National Geological Society of America, Association of Engineering Geologists, and so on. I was probably the only one who went on those conferences. And I cannot complain. The Bureau was good for me, and I tried to be good for the Bureau, too, as much as I could. It helps quite a bit. Well, I didn't travel to just go ahead and sit there and listen—I presented some papers. I was very pleased. Another day was Idaho, in some conference, and one of the professors there came to me, "Dr. Prokopovich, I'd like to meet you once more and thank you. You know, five years ago you gave a talk here about the clams. And I'm using your examples everyday here in my classes!"

Petershagen: (Laughs) Very good!

Disseminating Reclamation Information

Prokopovich: That's pleasant. And I popularized Bureau ideas. Nobody knew about the Bureau of Recreation [Reclamation]. Most of the people didn't know about it, so I did a good deal. And at these conferences, you open your eyes to very many things. You meet people. Even after my retirement, I'm getting once in a while, two or three letters per year from different countries. I got in Bureau, ask Secretary to show you a letter from Japan. Oh, my God, it was . . . [Laughs] It was a letter, I tell you! And somebody asked for a paper on subsidence, we sent them, and he thank really, most cordially. I never saw any. . . Japanese politeness! (Chuckles) And I think that she is quite liberated. I get letter from India—somebody ask for our data—because they have problems in India.

So we spread . . . Another thing that's very bad with Bureau, if you like me jumping to different . . . (Sigh) Bureau doesn't . . . Well, we are paid to build a dam. To build a dam we drill test holes, we have information from test hole. It's used. Dam

is built. Actually, these test holes have quite a bit of basic information. We're paid by taxpayer money, and I think it's our duty in a way to give taxpayers everything. We're not paid for analyzing this information for kind of pure science at some point, but it's wasted. I talked about it to Commissioner a couple of years ago. I'm not very polite. (Laughs) Straight language! (Laughs) But he agreed with me. He said that, "You are right, but we don't have money for doing this job." As a matter of fact, after I retired from the Bureau I still wrote four or five reports for the Bureau, just to use this information. I couldn't finish it all because my eyes collapsed. But I feel very badly about this waste of information.

Petershagen: So let me restate one or two points that I think you made, just so you can verify that I understood what you're trying to say. I think you told me that you think the Bureau should make more information available for general use to universities and that sort of thing?

Prokopovich: Well, okay, let put me a little bit different—more precise. We are living in a democratic society. Public opinion is very important. And I think that the Bureau does

absolutely . . . very little to explain our achievement and our goals and what we achieved. You take a newspaper, and it puts only—general public kind of opinion. I'll give you an example: land subsidence. Look at my bibliography. I cannot give you numbers. I think with Bureau only, spent more than eight million dollars on subsidence in the Central Valley. Actually, I am responsible for this waste. (Laughter)

Petershagen: I know that you did a lot of work with subsidence. Maybe we should . . .

Prokopovich: Now, years ago, I was in Japan. They have the same problems, probably even worse than ours, because they're close to the ocean, and so on. Now, in one place, I think it was in . . . Nigata—don't quote me. I think I may be wrong. What they did, they put telephone posts and put upon telephone posts, small labels. Now, right there, land was in 1930. [Points upward]

Petershagen: Wow!

Prokopovich: Right there, land was in 1928. [Indicates different height by pointing] And showing, graphically showing, subsidence. I asked several times, Bureau . . . Excuse me, I don't

like to insult you, but I think it would be much more beneficial for the Bureau not use money for your interview with me, but to put such a post in San Joaquin Valley.

Petershagen: To show subsidence in the San Joaquin Valley.

Prokopovich: Our farmers now are highly educated, with college degrees, most of them, big farmers. And none of them is really suicidal. They like money. Everybody likes to work for money, but it would be excellent example, but that's overdraft of groundwater. And each of them, eventually, with eight million dollars that we put on subsidence were paid by us, by taxpayers. So nobody likes . . . taxes. So maybe by more advertising, in popular form—say, take my paper about Central Valley Project and Engineering Geology, the Bureau has it. Read it. And a farmer would appreciate it. Now, they made a big . . . I think I will hit you, spit on you, you will sue me for a million, for whatever it is. Okay, now if I can spit on the government, nobody's going to sue me for a million. So it's easier to bark on government and government institutions. It makes me proud, and "Look how smart I am." But like

Kesterson.⁴ So they knew. Now I don't know, maybe, probably, all this mud hens right there all this selenium and salt. But I was in Kesterson before Kesterson was built, and there were so many polysulphites there in some of these ponds, that I could hardly breathe. So it was there before Bureau.

Petershagen: I'm sorry, you said polysulphites?

Prokopovich: Polysulphites. It's H₂S . . . It's H₂S₂, S₃, S₄, and so on. That's a very toxic material—full of them! Nobody studied them. And now, I went out in Monticello Dam,⁵ you know, coast ranges. I went in Solano Dam, and a fellow who was in Solano Dam told me, "Well, he found this swallow nest." Each

⁴ "Completed in 1971 by the Bureau of Reclamation, Kesterson included 12 evaporation ponds for irrigation drainage water. The reservoir, a part of the San Luis National Wildlife Refuge, was an important stopping point for waterfowl. In the 1960s officials proposed a 290-mile drainage canal to the ocean known as the San Luis Drain. Only 85 miles were completed, however, and work on the drain halted in 1986 after scientists discovered bird deformities due to drainage at Kesterson." For more information, see Water Education Foundation, "Kesterson Reservoir," www.watereducation.org/aquapedia/kesterson-reservoir. (Accessed 5/2016).

⁵ Completed in 1957, Monticello Dam is located on Putah Creek where the stream crosses the eastern boundary of Napa County. It regulates flows along the lower reaches of Putah Creek and stores surplus water. The dam is a concrete, medium-thick arch structure with a height of 304 feet above the foundation and a crest length of 1,023 feet.

swallow nest had a deformed chick or deformed egg. Now, there is no selenium here. Maybe it's selenium, maybe it's pesticide, maybe I don't know. But everybody jumped on selenium. And Bureau, "Oh, they know that—the toxic waste." Wasted millions.

Petershagen: So you think maybe the Bureau should be studying that whole issue more?

Prokopovich: Should be more broad studied.

Petershagen: And more of that information made available to the farmers and to the public?

Promoting Reclamation Achievements

Prokopovich: In popular form. Well, what we did, we published them so-and-so, so many feet high, so many feet tall. Oh, hell, it's a number, so what? In plain English, it's more difficult to write a popular paper than a scientific paper, because you have to be careful with your words and so on. But somebody have to write it a little bit and explain them. Did you ever fly over San Joaquin Valley, Sacramento Valley, by small plane, in small plane, not a jet.

Petershagen: No, not in a small plane.

Prokopovich: Well, I've flown several times. I know this area. It's just paradise. You go here, it's rice field, rice field, rice field. I don't know. Look, I am not . . . Maybe we don't need this rice, I don't know about it, but rice fields. You go south, vineyards. You go over across the Sierra Nevada, orchard, orchard, orchard. You can see. . .paradise. And, "Oh, this is paradise." Is it possible? No? You know, when I come up for the last paper for the International Congress, 1982 or 1983, I don't know, I look in literature, agricultural production of San Joaquin Valley was more than seven billion dollars. That's not transportation, not canning, not labor—no, it's a giant economy. And you know what, all this giant economy was possible only because of Bureau of Reclamation. Because without Bureau of Reclamation it will be desert. And why not talk about it?! "Oh, Bureau . . . Bureau doesn't talk like this." (Laughing) So that it is. And I think they should be really . . . Well, private company will go ahead. They will write in sky—written how their achievements will be. And Bureau keeps its mouth shut! I don't know why. I told a couple of times, "Put the subsidence posts . .

. " Matter of fact, there was a small article in *California Geology*. One of them would cost ten thousand dollars maybe. "Big money. How can you spend taxpayers' money for such a thing?" I don't know. As I told you, I cannot judge other shoes.

Petershagen: Yesterday I was in the photographic section at the Bureau, and I viewed some of the old movies they have made. So I think you'd agree then that maybe they should try to put those on television sometime?

Prokopovich: Look, I am not . . . That you have to ask somebody specialist in this deal. I'm not going to tell you what to do. So I'm telling you that it was—it should be done somehow. Some of this public advertising is cheap. I don't think it should be cheap. It should be correct. But (Sigh), you know. "Bureau killed all our native fish." (Chuckles)

Petershagen: That seems to be a . . .

Delta Issues

Prokopovich: Before Shasta Dam⁶ in drought years,

⁶ Shasta Dam and Shasta Reservoir are key facilities in the Central Valley Project. Shasta Dam is located about nine miles northwest of Redding, California, on the Sacramento River. Built during the seven-

chicken could cross Sacramento River.

Petershagen: That's right.

Prokopovich: That is forgotten. Before Shasta Dam, ships from the Antioch factory was coming up to Sacramento to pick up fresh water. Because always was fresh water. Now, I am not an economist, I don't know is it needed, or what is needed, do we need peripheral canal to give water for southern California, or not. I don't know. It's not my field. But I tell you what, the Delta is locally thirty feet below sea level. Delta is held only by these levees, and these levees are built bad because they are built by man, not by Mother Nature. Never improve Mother Nature, tell Mother Nature what to do. And sometimes it's not too smart with Mother Nature. But Delta will be flooded. I am old man, but I wouldn't be surprised if Delta will be flooded in my time. And then if Delta is flooded, it will be brackish water.

Now each drop of water that goes in San Joaquin Valley and later in California Aqueduct is going through Delta. (Sigh)

year period between 1938 and 1945, the dam is a 602-foot-high concrete gravity dam, which provides flood control, power, and water supply benefits.

You will deliver brackish water. By delivering brackish water will kill all vege . . . When I start to work in San Joaquin Valley, it was a desert. Oh, a little bit sheep here and there, grazing, some barley, some cotton. No water for irrigation. Just paid a couple million 'til it starts paying good. But now it's orchard, vineyard. They're much less tolerable to salt. And if you put in salt water, you wouldn't grow next year! And it's terrible! Another thing I think that something for Denver, really, (Sigh) they thought the age of big dams is over, blah, blah, blah. (Pause) But the place is growing. The place is tremendously growing.

Petershagen: Yes, it certainly is.

Prokopovich: They will need water, and this state cannot do it, because they would be out of state someplace, maybe from Canada, maybe from Alaska. I don't know, maybe from Oregon, from Washington. But it's an interstate, or maybe it's international problem. It's not big, but giant, conveniences that we have to build. And Bureau is keeping mouth shut not to build a dam, and that's it. I don't know. Okay!

Petershagen: So you think, is it fair to say that you're saying that the Bureau should assume some leadership and not just follow political opinion?

Prokopovich: Absolutely. And not cheap leadership.

Petershagen: But real leadership.

Prokopovich: Real leadership, solid, with solid knowledge. They asked me shortly before my retirement, "What is our asset?, the Bureau?" "Our mistakes, if we use them . . ."

Petershagen: Interesting thought. What was it like for you, Nik, to work at the Bureau? What time did you go to work in the morning?

Working for Reclamation

Prokopovich: Oh, I don't know.

Petershagen: Did you have a routine every day that you followed?

Prokopovich: Oh yeah, I had a routine of my time and so on. When I was in the field I never worked eight hours probably twelve, thirteen hours. I was not paid for it, but I just enjoyed my work and did it. Most of my reports I wrote

at home because there was some (Chuckles) interesting interference. So I wrote it at home. Most of my papers were written at home on my own time. But I enjoyed it. If you like . . . What I achieved in Bureau, I think in four fields I did some good things. One field was . . . Again, it's kind of difficult to explain. I'm not very happy with our colleges and universities here. I think they do very good way of education, but very narrow sometimes.

Petershagen: Now are you speaking about here in Sacramento, or across the United States?

Prokopovich: Well, as far as I can see, the same in Indianapolis, the same in Sacramento. I was not in Florida. I just cannot tell you. But for instance, a geologist could be graduated without courses of chemistry, biology, and so on. Now, when I was graduated I had at least six or seven chemistry courses: I guess organic chemistry, inorganic chemistry, qualitative analysis, quantitative analysis, geochemistry, crystallography, physical chemistry—six or seven. I've had six or seven biology classes, and so on. It gives me possibility . . . to see it wider, not telescope vision, tunnel vision. What I succeed here . . .

Soil Maps

I give you an example. For instance. Most of geology don't have petrology, soil science. Matter of fact, as a routine, when we drill the holes, first five feet–top soil goes farther. Well, it's wrong. I believe I save for government many hundred thousand dollars in money, in time, with some geology. They asked me, for instance, for geology, reconnaissance geology for San Joaquin Drain from Kesterson to Antioch. Well, it's fifty, sixty miles–probably will be several months of field work for geologist to go ahead. Plus you pay travel, plus you pay overnight, per diem, etcetera, etcetera, etcetera. And it will take probably half-a-year. The same for Cross Valley Canal. They'll probably work . . . I don't know how many–fifty, sixty miles–probably will take . . . I did it in one week! And I did it probably better than you will do it by drilling.

What I did, I used soil maps. California has very complete set of soil survey maps. And just by reading the soil survey map, and I have quite a few friends working in Bureau–Dr. Ralph Cole, he is passed away now. He was a petrologist and so on. We used to go rub our brains and talk

about it, and we were able to make such a lower flat terrace, terrace, a higher flat terrace, alluvial fence. Perfect! I think it's much better than geology map. I don't know how much you know about soil.

Petershagen: Not very much! But what you've said . . .

Prokopovich: Turn it off.

Petershagen: Okay, yes sir. I'll do that. [Prokopovich gives Petershagen crash tutorial in soil science.]

END SIDE B, TAPE 1.

BEGIN SIDE A, TAPE 2. JULY 21, 1994

Petershagen: Nik, you gave me a tutorial off the tape in canal construction and soil conditions and so forth, and I just want to make sure that we say on the tape that the summary of the point you were trying to make, I guess, is that you saved a lot of money using soil maps in the office.

Prokopovich: A lot of money and a lot of time and a lot of effort.

Petershagen: By using soil maps that others might have used that money and time in field surveys.

Prokopovich: Oh, to do this thing in the field would take maybe three, four months. Using soil maps, I was able to do it in a couple of weeks. I needed a little bit more experience, to read soil books and so on, understand the meaning of the soil sections and so on. But it's a tremendous savings by using . . . I have a paper about using soil map engineering geology. You can find it. Besides this soil maps give you also some things that may be important: alkalinity, acidity of soil, very, very important for construction.

Petershagen: We were talking about subsidence earlier.

San Joaquin Valley Subsidence

Prokopovich: Subsidence was really my major work for the last couple of decades.

Petershagen: We find that mostly in the San Joaquin Valley, correct?

Prokopovich: Yes, we have in San Joaquin Valley, but there is some evidence of subsidence in Sacramento Valley, and a tremendous amount of subsidence in the Delta. In San Joaquin Valley we have three different types of subsidence. One is subsidence near oil fields, but that's very insignificant. I don't

think I would worry about it. Second subsidence is deep subsidence caused by overdraft of groundwater, confined groundwater system. And that is multi-million dollar project and damages. Our bridges were flooded, our pipe crossings were flooded, and so on. So it does miserable things. The discovery of aquifers, relative fresh-water aquifers at the depths, they found it and the symmetric level locally, along the canal, dropped about five hundred feet.

Petershagen: My goodness!

Prokopovich: And that caused up to twenty-seven, thirty feet of land subsidence—tremendous damages. I'm very pleased at the end of my studies I was able to figure out the mystery of this deep subsidence. I couldn't figure out for a long time, the interconnection between deep subsidence and structural, tectonic movements. I have a couple of papers published—you can find it—explains really what it is all about. And the reason . . . After my retirement, I found something very bad. It bothers me very much. I found that there is also some tectonic subsidence in San Joaquin Valley which couldn't be stopped and controlled. And it's published in the

Proceedings of International Symposium of Land Subsidence, in Texas. I also worked on what's called shallow subsidence. I prefer the word "hydro compaction." As a matter of fact, I introduced this word in the literature.

Petershagen: Say that again please. Hydro compaction?

Prokopovich: Shallow subsidence I prefer to call hydro compaction because it better reflects the process. You have dry, arid lands, you can build a skyscraper and it's perfectly okay. You put water in it, put flowers around your house, and house collapses. Well, actually collapse. Cracks develop. Some cracks develop and the house falls into the cracks. I think I found out that may be questionable, but I found out the reason of hydro compaction. I think it's something related to paleo climates. Freeze-drying of ancient mud floors made them porous. (Laughs) Matter of fact, this idea of freeze-drying, it was generated by instant coffee.

Petershagen: It's not such a new idea after all, huh?

Engineering Geochemistry

Prokopovich: No. So that's the second thing which I was

working on. The last thing, my last year was mostly dealing with engineering geochemistry, which is brand new field in engineering geology. You would be surprised how many funny chemical reactions are coming around you in the soils. For instance, seepages of methane, which is natural gas. Methane—well, just like we're eating pork chop or beef steak, methane is eaten by bacteria for energy source. We use the methane as an energy source in our ovens in the gas field there. And bacteria oxidizing methane, reducing sulphite, SO_4 , ions in water, creating H_2S , hydrogen sulphide. And hydrogen sulphide eventually oxidized into sulfuric acid. And sulfuric acid is sulfuric acid.

Now like a new pumping plant has several discharge pipes. A couple of years ago, somebody went to inspect this pipe and fall down that pipe in holes. (Laughter) Buried pipe made a hole. Why? So corrosion of metal and so on, and then they found it was quite a different story—much easier, much cheaper to solve it. What happened there, crustaceous rocks there have some methane. And this methane seeping up oxidizes, creates, sulfuric acid. And sulfuric acid corrodes your pipes. The

solution wasn't as easy—over excavate these pipe, buried pipes, and fill them with gravel. Gravel will let all—if you don't like to have it exposed to this gravel, the gravel will let all gas out. Besides the fill that they used was gypsum. It has SO_4 in it. You put in gravel without gypsum, no more SO_4 , and will be everything A-okay. So that's that.

Petershagen: (Laughs) You make big problems sound very simple.

Prokopovich: Well, yeah, that's what it is. I'll give you another case. I may not be very popular about it. I wrote a paper. I'm unable to finish it now. It is in Bureau someplace, like in secretary's desk. Pyramid Lake. You know Pyramid Lake maybe?

Pyramid Lake

Petershagen: Yes.

Prokopovich: Beautiful desert lake, I love it. And the only source of water for Pyramid Lake is Sierra Nevada, local runoff. Sierra Nevada has no gypsum and no carbonate. Its granitic volcanic rock. So runoff is extremely corrosive, and fresh water, really. But Pyramid Lake has beautiful tufa deposits and

so on. I don't know why and how. And salinity in Pyramid Lake is very high—evaporation. But again, there is more SO_4 , sulphate, chloride and so on, from desert soils—washed out. From what came carbonate? Appears to be that Pyramid Lake has several gas seepages, and this gas reacts with SO_4 in water, created carbonate. This is used for tufa deposits. At the same time, a little bit difficult. Matter of fact, maybe, instead of building dams for fish pond lake, maybe we have to dig a couple of holes and simply dump gas into lake and it goes to feed the fish. I don't know. That's something beyond my knowledge.

Petershagen: Let me try to ask this this way: What project that you may have worked on do you think was most important to you, or most rewarding to you?

Important Work

Prokopovich: I think most of my work was concentrated on land subsidence. I wrote probably more than a dozen papers on subsidence. I think I understood the nature of land subsidence which I couldn't understand for a long time. But geochemistry, I think, is very important, too. I couldn't tell what is more or less

important. Subsidence costs us, I believe, about eighty million bucks. Geochemistry, I don't know. It gives us kind of an outline, I think, because the multi-disciplinary approach is very important. I don't know. I tried very hard to let somebody in my place, when I knew I was retired somebody was staying. I was unable to find anybody. Well, actually I was able to find a girl. She was beautiful. She was really smart, but she was seventy-fifth on the list. So Bob Trefzger tried to get her, but was unable. I was not in America. I went to Australia, International Congress, and Bob handled it. Bob tried, but he just couldn't do it. She got a good job someplace in an oil company in Alaska, but she was really good. But you see, it's kind of funny. Some people who apply to job—I'm not for discrimination, don't misunderstand me, I'm not a great scholar or whatever it is—I'm for knowledge and the desire to work.

Now one fellow applied to job, a student, and he was very enthusiastic. I think he could do beautiful job here and do it. At the same time some girl applied and she just was . . . Well, she was good. She was not bad, but she was a . . . gold digger in a way. And so she tried to promote herself

and so on. We hired this boy and then an hour later she went to Personnel and they told us, "Well, we have to hire a girl." She was working, but she was absolutely not . . . Well, she did job, okay. I'm not crying about that. But the boy was really enthusiastic. He would do much better. I couldn't hire him. Another day, somebody applied . . . I think if there was a better answer, kind of a better chance to get job and so on, but the guy was . . . I think his credit were the kind of. . . school credits . . . It was a psychology of women and square dancing. Well, I'm not against psychology of woman or square dancing, but he didn't have chemistry enough or whatever it is, I don't know. So it's kind of very difficult, automatically done by numbers.

Petershagen: So you would advise a young geology student to focus on things like chemistry rather than square dancing?

Prokopovich: First things I would advise university to tell the young geology people there is not much hope to get a job in geology. Because as I told you, I had about maybe fifty, sixty students from Davis working for me. And they were very thankful. (Ms. Prokopovich serves refreshments)

Petershagen: I should say on the tape that this interruption was just Mrs. Prokopovich serving us a soda so that we could continue with the interview.

Prokopovich: Without dehydration! (Laughter)

Petershagen: You must have worked with people in other agencies, Nik.

Working with Other Agencies

Prokopovich: Oh yeah.

Petershagen: The California Department of Water Resources, for example. Did you have direct counterparts? Were there geologists in the State Department of Water Resources?

Prokopovich: Oh yeah.

Petershagen: I'm sure there was cooperation between the agencies?

Prokopovich: Yeah, I never had any problems.

Petershagen: Did you feel competition with other agencies? I mean, friendly competition, not problems.

Prokopovich: No, I don't think we kind of . . . No, in fact we worked together, helped each other. No, I can't recall—no.

Petershagen: As the State Department of Water Resources built the Oroville Dam and the California Aqueduct, did they call on your for help?

Prokopovich: Well, I just told you, I can't judge the others' shoes, in my story, if you remember it. Oroville Dam—they didn't call us. I didn't hear anyone ask about it. But the aqueduct . . . Actually the San Luis Canal is part of the aqueduct from San Luis Dam to Kettleman City. Well, we knew what we were doing. They knew what they were doing. Frankly, I think that at that time, the State Department of Water Resources did not fully document their effort. Just, you know, for files is how I can tell you. They did work on Mendota test site, they did very good job, very interesting job and so on, but they didn't publish any big reports.

Petershagen: You would like to have seen more publication and more shared information?

Prokopovich: Well, not for my library, not for sharing. I had my own information, whatever I needed for the Mendota test site. They were very

cooperative. But just for some other people for recommendations for the future, because they spent quite a bit of money on it. Can you turn it off?

Petershagen: Yes. (Tape turned off and on to allow Prokopovich to rest a moment.) Now, Nik, I think we're getting close to the end of this . .

Prokopovich: . . . interview.

Petershagen: What age were you when you retired?

Retirement

Prokopovich: Mama, how old?

S. P.: (Chuckles) Seventy.

Prokopovich: Not quite seventy, I believe. No, sixty-nine. Over sixty-five.

Petershagen: Past sixty-five.

S. P.: You retired in '86.

Prokopovich: But don't put it on the record, Mama. (Chuckles)

Petershagen: So that would be sixty-eight.

Prokopovich: Sixty-eight or something like that, I don't know.

S. P.: Yeah, sixty-eight.

Petershagen: Sixty-eight, okay, we figured that out. And why did you decide to retire at that time?

Prokopovich: My eyesight, I think, was not so good. I didn't feel—it was physically difficult, getting physical different. But I did, there was cutting in staff, you know. I had all seniority. If I will stay, somebody else will be kicked off, and I will stay there. That also wasn't quite right. So I decided I had my time. I did whatever I could.

Petershagen: Very good. Did you notice a lot of changes in the Bureau of Reclamation as you worked for it?

Changes within Reclamation Over Time

Prokopovich: Oh, yes! Definitely. Because just like . . . I was able . . . By personal contact with different branches in the Bureau, I was able to find good friends in Water Quality Laboratory, in soils people and so on. So we start to do kind of a multi-disciplinary approach, like using soil maps. I talked to

soil people. They talked to me. That's how it comes in. I was able to create small chemical/physical laboratory in my place, and practically, I was able to do all my work by myself, and by my helper. Later by, when we started to work on Spring Creek, north in California, I think I pioneered, did a very good job there, because highly acidic soil, pH two [2.0], two-point-five [2.5], three [3.0]. But if you're taking the samples, bringing it in office, and analyzing it in office . . . then pH changes. You have to do pH readings in the field. So I made small field laboratory, and I was standing in the field as they pulled a core out. I took samples and measured pH to see in same minute in the field, which was never practiced before.

Petershagen: Spring Creek, just because of its acidity was a real challenge to the Bureau. Still is a real challenge! (Chuckles)

Prokopovich: Well, frankly, put it off record. (Tape turned off and on.) [Prokopovich reiterated that he would not discuss technical issues in detail on the tape for fear of being misunderstood.]

Petershagen: Nik, maybe I've worn you out. Maybe I've

tired you out for the day. Do you have any issues that you would like to address? Anything you would like to say without me prompting you?

Prokopovich: For the Bureau?

Petershagen: Yes.

Reclamation Needs to Advertise Its Achievements

Prokopovich: Well, I tell you little bit more advertising would help, but the true advertising, not cheap ones. I think we have to realize that we need either Bureau or somebody else, but we need some brain . . . unit—I don't know what kind of brain trust or whatever it is . . .

Petershagen: Right, what we call a think tank.

Prokopovich: A think tank or stink tank—I don't know. (Laughter) To plan, to do something with water. Another thing I'm very positive about it. I know I'm not popular, but it's my personal feeling. No matter what we try to do with San Joaquin Valley, San Joaquin Valley is extremely important economically for us. I'm not speaking . . . Maybe we misuse water there, or it could be better used and so on—but no matter how you use water

there, you need some drainage. And San Joaquin Valley needs a drain, needs a drain, needs a drain. Now, somebody tell you, spoiling our holy Delta, and so on. Not so. To begin with Delta, two hundred years ago, had grizzly bear, elks, coyote, wolf and so on. Right now, Delta has rabbits.

Petershagen: That's right!

Prokopovich: It's introduced. It's not native.

Petershagen: That's right.

Prokopovich: Fish, is all introduced fish. So there's really . . . Delta has terminal cancer. I'm old man, but I think the Delta will collapse within my lifetime. We will see the end of the Delta. I have big report on Delta in Bureau—look it over—very detailed report. And when Delta will collapse, all San Joaquin Valley, all southern California will collapse. I'm not an economist. I'm no planner. I don't know, I can't judge others' shoes. I told you over and over. I think only which could save the Delta was Peripheral Canal. Now maybe they should put a stop to this water going to Los Angeles, but I don't know, I cannot tell you about it. But Peripheral Canal will collapse, too. But to fix it will take maybe

months. To desalinize Delta, forget about it. I was very unhappy about this publicity—the Bureau really didn't tell the truth. Now, the truth is that the largest opponent to the Peripheral Canal was Santa Clara . . . Santa Clara County. But you get close to Bay and that holy Delta and so on. Actually, they will be the first one who has salt water. Maybe if they would realize it, they wouldn't do it. But we didn't tell them the true story. It's just like a doctor who wouldn't tell their patient he has terminal cancer. So (claps hands) that's it. I also would like the university will force their students to learn more broader, basic natural sciences. When I was in school, we didn't have atomic absorption . . .

Petershagen: Nope!

Prokopovich: We didn't have pH meter and so on. But with basic A-B-C, I was able to use it immediately.

Petershagen: Very good!

Prokopovich: . . . or bad. It's how it is. And I think basically the Bureau did a damned good job, if not excellent job. It may be a little bit . . . Well, I told you what I think. First thing is

more publicity. Second thing, better use of materials that we're developing. I'll give you another example, for instance. I made it myself—mistake—I admit it readily. I was in charge of drilling along San Luis Canal.⁷ I went by books. Well, we went through silt to sand, clay and sand to whatever it is, or some gypsum, some soil. (Big sigh) I missed something. I missed paleo soil.

Paleo Soil

Petershagen: You missed what?

Prokopovich: Paleo soil, old soils. Actually, I didn't miss it. You see, in Europe, and in North America, in literature, they're always finding lush deposits. They have fossil soils, black soils. So in all my work, during the drilling I asked people on the rig, "Well, look, if you have some black soil, black soil gives you stratigraphic units." Well, they didn't have any black soils there. But then, at the end, I

⁷ "San Luis Canal, a segment of the California Aqueduct, begins on the southeast edge of O'Neill Forebay and extends about 101.5 miles southeasterly to a point near Kettleman City. It substantially parallels Interstate Highway 5 located on the western side of the San Joaquin Valley at the eastern flank of the Coast Ranges." For more information, see California Department of Water Resources, "San Luis." <https://water.ca.gov/Programs/State-Water-Project/SWP-Facilities/San-Luis> (Accessed January 2022).

understood what was wrong. We were in a desert! And in a desert, instead of black soil, I had to look for carbonates, because its carbonate horizon will indicate desert interval.

Petershagen: Aha!

Prokopovich: Actually, during perhaps, I don't know, a hundred thousand or two hundred thousand years, we have four times a desert here. Now are we going to a fifth time now or not, I cannot tell you. But if I had this information originally, I probably could tell you. Well, of course I didn't have money. I couldn't use the holy taxpayers' money for looking for these things either. But I think it was wrong.

Petershagen: Interesting.

Prokopovich: Sad, but that's how it is, it's part of life. I make mistakes myself, and I admit it happily—not happily, but I do it. I gave all my materials to Personnel, but the Bureau has all of them, of course.

Petershagen: Of course.

Prokopovich: Unless they threw them away! (Laughter)

Petershagen: I understand that some of your papers are at the University of California at Davis? Is that correct?

Prokopovich: Not papers, some of my manuscripts. I have a copy for my own. I gave a copy for Bureau. I took copies of my own, and I asked permission to do it, and I have the original. I have to ask permission. I'm sorry for a few things. I'm sorry about a half dozen papers were not published. I'm particularly sorry about my book, which was left unpublished. I was asked to write a book on land subsidence, but I always postponed it to have better and better information. So on retirement, then I got blind . . . So, well, not everything. You can't get everything in your life. I got enough.

Petershagen: Well, it sounds to me like you've had a full life to this point, and you're looking forward to more new things.

Prokopovich: Yeah, I'm not complaining. Oh, by the by, in one of my papers, you can find the name Hugo Holl.

Petershagen: Can you spell that for me?

Prokopovich: It is H-0-L-L, I believe. Hugo I don't know

how to spell. He is really the man. You're going to tape now? Put it off. (tape turned off and on)

Petershagen: Let me thank you for cooperating and participating in this interview, Nik.

Prokopovich: You're welcome.

Petershagen: And allowing us to do this. Before I turn the tape recorder off for the last time, I have to complete this with where we started, and that is, would you please acknowledge that you understand this interview is your gift to the government of the United States and it becomes government property, and it will be open for researchers, historians, geologists, anyone that's interested in your career. I see you nodding your head. Will you please say "yes"? (Laughter)

Prokopovich: You did it for me!

Petershagen: Thank you.

END SIDE A, TAPE 2. JULY 21, 1994
END OF INTERVIEW

